

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 F16C19/50 F16C33/58

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 F16C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 319 852 A (NIPPON THOMPSON CO., LTD) 18 June 2003 (2003-06-18) paragraph '0021! - paragraph '0029!; figures 1-3 -----	1,2,4-6, 8,13,17, 18
X	US 4 884 902 A (KISPERT ET AL) 5 December 1989 (1989-12-05) column 2, line 29 - line 64; figures 1,2 -----	1,2,4,6, 7,14,15, 17,18
Y		3
X	DE 19 09 845 U (DUERKOPPWERKE AKTIENGESELLSCHAFT) 11 February 1965 (1965-02-11) page 4, paragraph 4 - page 5, paragraph 3; figures 1,2 ----- -/-	1,2,4,5, 13

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

& document member of the same patent family

Date of the actual completion of the international search

21 April 2005

Date of mailing of the international search report

04/05/2005

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl.
Fax: (+31-70) 340-3016

Authorized officer

Axelsson, T

C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 4 320 934 A (ROECK ET AL) 23 March 1982 (1982-03-23) column 2, line 37 – column 3, line 17; figure 8 ----- FR 911 385 A (M. VOISIN) 5 July 1946 (1946-07-05) page 1, line 43 – page 2, line 19; figures -----	1,2,4,6, 7,13
X	US 3 857 618 A (HAGEN M,US ET AL) 31 December 1974 (1974-12-31) column 6, line 1 – column 7, line 10; figure 11 -----	1,2,4,6, 7,14,16
Y		3

Patent document cited in search report		Publication date		Patent family member(s)		Publication date
EP 1319852	A	18-06-2003	JP	2003176820 A		27-06-2003
			EP	1319852 A2		18-06-2003
			US	2003108256 A1		12-06-2003
US 4884902	A	05-12-1989	DE	3737386 A1		18-05-1989
			FR	2622652 A1		05-05-1989
			JP	1150022 A		13-06-1989
DE 1909845	U	11-02-1965	NONE			
US 4320934	A	23-03-1982	AT	360698 B		26-01-1981
			AT	361656 B		25-03-1981
			AT	428778 A		15-06-1980
			DE	2918572 A1		03-01-1980
			ES	251181 Y		16-03-1981
			FR	2433917 A1		21-03-1980
			GB	2022992 A ,B		28-12-1979
			IT	1115227 B		03-02-1986
			NL	7904458 A		17-12-1979
			AT	776778 A		15-08-1980
FR 911385	A	05-07-1946	NONE			
US 3857618	A	31-12-1974	NONE			